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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,722	06/27/2001	Alastair David Griffiths Lawson	1300-1-007	4141
23565	7590	12/04/2003	EXAMINER	
KLAUBER & JACKSON 411 HACKENSACK AVENUE HACKENSACK, NJ 07601			DIBRINO, MARIANNE NMN	
			ART UNIT	PAPER NUMBER
			1644	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/674,722	Applicant(s) LAWSON ET AL.	
	Examiner DiBrino Marianne	Art Unit 1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003 and 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-41 is/are pending in the application.
- 4a) Of the above claim(s) 19-33,36,37,40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34,35,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>8/25/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Applicant's amendments filed 4/7/03 and Applicant's response filed 7/28/03 are acknowledged and have been entered.
2. Applicants are required under 37 C.F.R. 1.821(d) to amend the specification to list the appropriate SEQ ID NOS for sequences disclosed in the specification (for example, those in figure 2).
3. Applicant's election (in the response filed 7/28/03) with traverse of Group II (claims 34-39), drawn to a nucleic acid sequence/carrier encoding a chimeric receptor comprising two independent polypeptide chains wherein a first polypeptide chain comprises an extracellular domain of an antibody heavy chain variable region, a spacer domain of any polypeptide comprising 20 to 100 amino acid residues, a transmembrane domain of any oligonucleotide or polypeptide derived from all or part of a human CD4 transmembrane domain, and an intracellular domain which is a signaling domain comprised of any naturally occurring polypeptide signaling sequence that is all or part of the human CD4 intracellular signaling domain; and a second polypeptide chain comprises an extracellular domain of an antibody light chain variable region, a spacer domain of any polypeptide comprising 20 to 100 amino acid residues, a transmembrane domain of any oligonucleotide or polypeptide derived from all or part of a human CD4 transmembrane domain, and an intracellular domain which is a signaling domain comprised of any naturally occurring polypeptide signaling sequence that is all or part of the T cell receptor zeta chain, and species of plasmid pHMF374 as the carrier.

The basis for Applicant's traversal is that the examination of non-elected Groups I and III would entail an additional search of the identical classes wherein the claims of Group II are classified and that there is not serious burden.

Applicant's arguments in the response filed 7/28/03 have been fully considered but are not persuasive.

There are two criteria for a proper requirement for restriction between patentably distinct inventions:

- (1) The inventions must be independent (see MPEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP § 806.05 - § 806.05(I)); and
- (2) There must be a serious burden on the Examiner if restriction is not required (see MPEP § 803.02 § 806.04(a) - (j), § 808.01(a) and § 808.02).

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Regarding undue burden, the M.P.E.P. § 803 (July 1998) states that: "For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search". The restriction requirement enunciated in the previous Office Action meets this criterion of serious burden and therefore establishes that serious burden is placed on the Examiner by the examination of add. With regard to Applicant's arguments detailed above, a search of the invention of Groups I and III entail search of additional classes and subclasses and the inventions have a separate classification from that of Group II. For example, the Invention of Group I is classified in Class 530, subclasses 345 and 391.1, the Invention of Group II in Class 536, subclasses 23.1 and 23.4 and Class 435, subclass 320.1 and the Invention of Group III in Class 424, subclass 93.7.

The requirement is still deemed proper and is therefore made FINAL.

Claims 34, 35, 38 and 39 read on the elected species.

Accordingly, claims 19-33 and 40-41 (the non-elected inventions enunciated in Group I and III, respectively) and claims 36 and 37 (non-elected species of Group II) are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions.

Claims 34, 35, 38 and 39 are currently being examined.

4. The disclosure is objected to because of the following informalities:

There is no Brief Description of the Drawings.

Appropriate correction is required.

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5. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

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6. The use of the pBluescript ks+ trademark has been noted in this application (for example on page 13 of the instant specification at lines 6, 11, 27 and 31 and on page 12 at line 35). It should be capitalized or accompanied by the TM or [®] symbol wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the trademarks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Each letter of the trademark must be capitalized. See MPEP 608.1(V) and Appendix 1.

Appropriate correction is required.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claim 39 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is apparent that the plasmid pHMF374 (and/or pHMF 367 disclosed in Figure 3 of the instant application) is required to practice the claimed invention. As a required element, it must be known and readily available to the public or obtainable by a repeatable method set forth in the specification. If it is not so obtainable or available, the enablement requirements of 35 USC 112, first paragraph, may be satisfied by a deposit of the pertinent plasmid. See 37 CFR 1.801-1.809.

If the deposit was made under the provisions of the Budapest Treaty, filing of an affidavit or declaration by applicants, assignees or a statement by an attorney of record over his or her signature and registration number stating that the deposit has been made under the provisions of the Budapest Treaty and that all restrictions upon public access to the deposit will be irrevocably removed upon the grant of a patent on this application is required.

In addition to the conditions under the Budapest Treaty, applicant is required to satisfy that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent in U.S. patent applications.

If the deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 C.F.R. 1.801-1.809, an affidavit or declaration by applicants or someone associated with the patent owner who is in a position to make such assurances, or a statement by an attorney of record over his or her signature, stating that the

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deposit has been made at an acceptable depository and that the following criteria have been met:

- (A) during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;
- (B) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;
- (C) the deposit will be maintained in a public depository for a period of 30 years after the date of deposit or 5 years after the last request for a sample or for the enforceable life of the patent
- (D) a viability statement in accordance with the provisions of 37 C.F.R. 1.807;
- (E) the deposit will be replaced should it become necessary due to inviability, contamination, or loss of capability to function in the manner described in the specification.

Furthermore, unless the deposit was made at or before the time of filing, a declaration filed under 37 C.F.R. 1.132 is necessary to construct a chain of custody. Plasmid.... was deposited after the time of filing. The declaration, executed by a person in a position to know, should identify the deposited plasmid by its depository accession number, establish that the deposited plasmid is the same as that described in the specification, and establish that the deposited plasmid was in Applicants' possession at the time of filing. In re Lundak, 27 USPQ 90.

Amendment of the specification to recite the date of deposit and the complete name and address of the depository is required. As an additional means for completing the record, applicant may submit a copy of the contract with the depository for deposit and maintenance of each deposit.

NOTE THE CURRENT ATCC DEPOSITORY ADDRESS

American Type Culture Collection, 10801 University Boulevard, Manassas, VA 20110-2209

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 39 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 39 is indefinite in the recitation of "Plasmid pHMF374 of Figure 3" because the plasmid in Figure 3 of the instant application is "pHMF367" and it is not clear what is meant.

b. Claim 39 is indefinite in the recitation of "Plasmid pHMF374" because its characteristics are not known. The use of " Plasmid pHMF374" as the sole means of identifying the claimed

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cell line renders the claim indefinite because " Plasmid pHMF374" is merely a laboratory designation which does not clearly define the claimed product, since different laboratories may use the same laboratory designations to define completely distinct products.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Gross et al (PNAS USA 86: 10024-10028, 1989, of record). Gross et al teach DNA coding for a chimeric receptor containing two or more independent polypeptide chains comprising in N- to C-terminus sequence VH or VL as the ligand binding domain, spacer region, and TCR J and C regions as the TM and cytoplasmic domains and both chains being capable of pairing after expression and recognizing antigen in a non-MHC restricted fashion (see entire article).

13. Claims 34, 35 and 38 rejected under 35 U.S.C. 102(b) as being anticipated by WO 96/23814.

WO 96/23814 teaches DNA encoding a hybrid chimeric membrane bound receptor protein comprising an extracellular ligand binding domain, a transmembrane domain and a cytoplasmic effector domain and further teaches spacer amino acid residues between regions (especially claims 11-13 and page 22). WO 96/23814 teaches that the cytoplasmic effector domain may be TCR zeta (especially claim 12). WO 96/23814 teaches expression with plasmid vectors. With respect to the limitation "and wherein the spacer and/or transmembrane domains are selected to remain unassociated except in the presence of bound ligand" (recited in instant claim 19), the claimed receptor appears to be the same as the reference receptor.

Since the Patent Office does not have the facilities for examining and comparing the process of the instant invention to those of the prior art, the burden is on applicant to show an unobvious distinction between the process of the instant invention and that of the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

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14. Claims 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 92/10591 as evidenced by EMBASE accession number 2003166740 (Kinjo et al, J. Clinical Pathology, 2003, 56/2, 97-108).

WO 92/10591 teaches chimeric proteins encoded by DNA sequences, said proteins characterized by an extracellular binding domain which may be VH or VL, a TM domain and a cytoplasmic domain which may be TCR zeta. WO 92/10591 further teaches addition of amino acid residues between domains, i.e., spacers (see entire article). It appears to be an inherent property of the reference receptors that the transmembrane zeta regions remain unassociated except in the presence of bound ligand" (recited in instant claim 19).

15. Claims 34, 35 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 96/24671.

WO 96/24671 teaches DNA encoding chimeric proteins comprising an extracellular binding domain which may be a VH or a VL of Ig, a TM domain and a cytoplasmic domain which may be TCR zeta. WO 96/24671 further teaches spacers between domains and that receptors may be formed by making two chains, one comprising VH of Ig and another comprising VL of Ig (see entire article). It appears to be an inherent property of the reference receptors that the transmembrane zeta regions remain unassociated except in the presence of bound ligand" (recited in instant claim 19). WO 96/24671 further teaches that the DNA constructs may be introduced into vectors for cloning an appropriate host such as E. coli and that the constructs may be introduced by calcium phosphate technique.

EMBASE accession number 2003166740 (Kinjo et al, J. Clinical Pathology, 2003, 56/2, 97-108) teaches DNA carried by plasmid vector transfected into cells using the calcium phosphate method.

Therefore, the reference appears to inherently teach plasmid vectors, as evidenced by said evidentiary reference.

16. Claims 34 and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 97/23613 (of record).

WO 97/23613 teaches nucleic acid sequences, or a nucleic acid sequence, encoding a chimeric receptor as recited in claim 19 or an independent polypeptide chain thereof, including those comprised of the components of the elected species enunciated above in item #3 of this Action.

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17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 34, 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/23613 in view of Maniatis et al.

WO 97/23613 teaches non-viral vector carriers for the said DNA sequences (see entire article). WO 97/23613 teaches nucleic acid sequences, or a nucleic acid sequence, encoding a chimeric receptor as recited in claim 19 or an independent polypeptide chain thereof, including those comprised of the components of the elected species enunciated above in item #3 of this Action. WO 97/23613 teaches non-viral carriers.

WO 97/23613 does not teach a plasmid vector carrier.

Maniatis et al teach plasmid vector carriers for DNA.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have used a plasmid vector carrier such as one taught by Maniatis et al to carry the DNA sequences taught by WO 97/23613.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to produce the said chimeric receptor proteins.

19. Claims 34, 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/10591 in view of Maniatis et al.

WO 92/10591 teaches chimeric proteins encoded by DNA sequences, said proteins characterized by an extracellular binding domain which may be VH or VL, a TM domain and a cytoplasmic domain which may be TCR zeta. WO 92/10591 further teaches addition of amino acid residues between domains, i.e., spacers (see entire article). It is an expected property of the reference receptors that the transmembrane zeta regions remain unassociated except in the presence of bound ligand" (recited in instant claim 19).

WO 92/10591 does not teach a plasmid vector carrier.

Maniatis et al teach plasmid vector carriers for DNA.

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It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have used a plasmid vector carrier such as one taught by Maniatis et al to carry the DNA sequences taught by WO 92/10591.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to produce the said chimeric receptor proteins.

20. Claims 34, 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross et al (PNAS USA 86: 10024-10028, 1989, of record) in view of Maniatis et al.

Gross et al teach DNA coding for a chimeric receptor containing two or more independent polypeptide chains comprising in N- to C-terminus sequence VH or VL as the ligand binding domain, spacer region, and TCR J and C regions as the TM and cytoplasmic domains and both chains being capable of pairing after expression and recognizing antigen in a non-MHC restricted fashion (see entire article).

Gross et al do not teach plasmid vector carriers.

Maniatis et al teach plasmid vector carriers for DNA.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have used a plasmid vector carrier such as one taught by Maniatis et al to carry the DNA sequences taught by Gross et al.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to produce the said chimeric receptor proteins.

21. Claims 34, 35 and 38 are objected to because of the following informality:

Base claim 34 recites the limitation "a chimeric receptor of Claim 19". Claim 19 is a non-elected claim. Applicant is required to rewrite base claim 34 to include all of the limitations of the chimeric receptor of claim 19.

Appropriate correction is required.

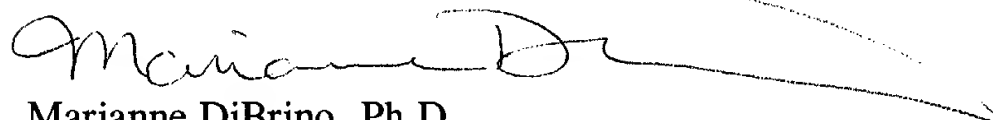
22. No claim is allowed.

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23. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 703-308-0061 (after 1/7/04 the telephone number is 571-272-0842). The Examiner can normally be reached on Monday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Christina Chan, can be reached on (703) 308-3973. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 (before final) or 703-872-9307 (after final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.



Marianne DiBrino, Ph.D.

Patent Examiner

Group 1640

Technology Center 1600

December 1, 2003



CHRISTINA CHAN

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 1600